

### **REMARKS**

In the final Office Action, dated June 18, 2008, the Examiner objects to the Specification as allegedly failing to provide proper antecedent basis for the claimed subject matter; objects to claims 11, 12, 26, 61, and 62 because of minor informalities; rejects claims 1, 11, 12, 13-17, 26-32, and 41-44 under 35 U.S.C. § 103(a) as allegedly unpatentable over U.S. Patent No. 6,160,627 to Ahn et al. (hereinafter “AHN”); rejects claims 52-59, 61, and 62 under 35 U.S.C. § 103(a) as allegedly unpatentable over U.S. Patent No. 5,157,461 to Page (hereinafter “PAGE”); and rejects claims 2-10, 18-25, 33-40, 45-51, and 60 under 35 U.S.C. § 103(a) as allegedly unpatentable over AHN in view of PAGE. Applicants respectfully traverse these objections and these rejections.

By way of the present amendment, Applicants propose amending claims 1, 3-4, 7-17, 19-32, and 34-62 to improve form. Claims 1-62 are pending.

### **Objection to the Specification**

The specification stands objected to as allegedly failing to provide proper antecedent basis for the claimed subject matter. The Examiner alleges that claims 12 and 61 recite “a computer-readable medium” and that the specification does not recite this feature (final Office Action, p. 2). While not necessarily agreeing with the Examiner, Applicants have amended claims 12 and 61 to address the Examiner’s concerns and in order to expedite prosecution. Accordingly, Applicants respectfully request that the objection to the specification be reconsidered and withdrawn.

Objections to the Claims

Claims 11, 12, 26, 61, and 62 stand objected to because of minor informalities.

Applicants respectfully traverse this objection.

Specifically, the Examiner alleges that claims 11, 12, 26, 61, and 62 should recite “configured to” instead of “for” (final Office Action, p. 2). While not necessarily agreeing with the Examiner, Applicants have amended claims 11, 12, 26, 61, and 62 to address the Examiner’s concerns and in order to expedite prosecution. Accordingly, Applicants respectfully request that the objection to claims 11, 12, 26, 61, and 62 because of alleged informalities be reconsidered and withdrawn.

Rejection under 35 U.S.C. § 103(a) based on AHN

Claims 1, 11, 12, 13-17, 26-32, and 41-44 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over AHN. Applicants respectfully traverse this rejection.

Independent claim 1, amended as proposed, is directed to a method of controlling path length in a quantum cryptographic key distribution (QKD) system that includes receiving a signal identifying a plurality of symbols as training symbols over a QKD path; receiving the plurality of training symbols transmitted from a QKD transmitter over the QKD path via quantum cryptographic mechanisms; and controlling a length of the QKD path based on the received plurality of training symbols. AHN does not disclose or suggest this combination of features.

For example, AHN does not disclose or suggest receiving a signal identifying a plurality of symbols as training symbols over a QKD path, as recited in claim 1, amended as proposed. The Examiner relies on col. 3, lines 6-8 and col. 3, line 20 of AHN for allegedly disclosing “a

stabilized optical fiber Mach-Zehnder interferometer in which transmission wavelength is controlled according to the present invention for varying the length of the optical fiber” (final Office Action, p. 3). Applicants submit that these sections (or any other sections) of AHN do not disclose or suggest the above feature of claim 1, amended as proposed.

Col. 3, lines 6-33 of AHN disclose:

FIG. 1 illustrates a stabilized optical fiber Mach-Zehnder interferometer in which a transmission wavelength is controlled according to the present invention.

The optical fiber Mach-Zehnder interferometer filter according to the present invention includes a 1.3  $\mu\text{m}$  wavelength tunable laser diode (TLD) 10 (or DFB-LD(Distributed Feedback laser diode)) for implementing a stabilization of an interferometer, first and second 3 dB optical fiber couplers 20 and 50 having a 50% coupling ratio at 1.5  $\mu\text{m}$  wavelength band for forming a Mach-Zehnder interferometer, namely, for dividing the intensity of light into two parts, an optical fiber phase modulator(fiber stretcher) 40 connected with two light paths of the interferometer between the first and second optical fiber couplers 20 and 50 for varying the length of the optical fiber, a polarization controller 30 for controlling the polarization of the interfered light, 1.31  $\mu\text{m}$ /1.5  $\mu\text{m}$  wavelength division multiplex optical couplers(WDM coupler) (hereinafter called first and second wavelength division multiplex optical couplers) 60 and 70 connected with the second optical fiber coupler 50 of the interferometer for dividing an optical signal for a filtering and a stabilization light source, and a stabilization circuit 80 for receiving output signals from the first and second wavelength division multiplex optical couplers 60 and 70, obtaining a difference therebetween based on the differential amplifier, integrating the same, feeding-back to the optical fiber phase modulator 40 and obtaining a constant optical path difference of the interferometer.

This section of AHN discloses an optical fiber Mach-Zehnder interferometer in which a transmission wavelength is controlled by an optical fiber phase modulator (fiber stretcher) for controlling the polarization of the interfered light. The Examiner is interpreting receiving any optical signal having a wavelength as allegedly corresponding to “receiving training symbols” (final Office Action, p. 36). Even if this interpretation is deemed reasonable (a point Applicants do not concede), this section of AHN does not disclose or suggest receiving a signal identifying a plurality of symbols as training symbols. In addition, Applicants once again submit that this section does not disclose or even remotely suggest a quantum cryptographic key distribution system. Therefore, this section of AHN does not disclose or suggest receiving a signal

identifying a plurality of symbols as training symbols over a QKD path, as recited in claim 1, amended as proposed.

Moreover, AHN does not disclose or suggest receiving a plurality of training symbols transmitted from a QKD transmitter over a QKD path via quantum cryptographic mechanisms, as also recited in claim 1, amended as proposed. As stated above, the Examiner relies on col. 3, lines 6-8 and col. 3, line 20 of AHN for allegedly disclosing “a stabilized optical fiber Mach-Zehnder interferometer in which transmission wavelength is controlled according to the present invention for varying the length of the optical fiber” (final Office Action, p. 3). Applicants submit that these sections (or any other sections) of AHN also do not disclose or suggest the above feature of claim 1, amended as proposed.

Col. 3, lines 6-33 of AHN were reproduced above. As stated above, this section of AHN discloses an optical fiber Mach-Zehnder interferometer in which a transmission wavelength is controlled by an optical fiber phase modulator (fiber stretcher) for controlling the polarization of the interfered light. However, this section (or any other section) of AHN does not disclose, suggest, or have anything to do with, quantum cryptography. Therefore, this section of AHN cannot disclose or suggest receiving symbols via quantum cryptographic mechanisms. As explained in the specification, quantum cryptographic mechanisms can be associated with, as a non-limiting example, the act of sending single photon optical pulses, such as dim pulses, via an optical network, and measuring the state of those single photons at the receiver to identify whether eavesdropping has occurred over the optical path. Therefore, this section (or any other section) of AHN cannot disclose or suggest receiving a plurality of training symbols transmitted

from a QKD transmitter over a QKD path via quantum cryptographic mechanisms, as recited in claim 1, amended as proposed.

Therefore, AHN does not disclose or suggest each of the features of claim 1, amended as proposed. Furthermore, Applicants submit that the Examiner's reasons to modify AHN to include the features of claim 1 do not satisfy the requirements of 35 U.S.C. § 103.

For example, with respect to the reasons for modifying AHN, the Examiner alleges (final Office Action, pp. 4-5):

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the Applicant's invention to include "receiving training symbols transmitted from a QKD transmitter over a QKD path", and "controlling a length of the QKD path based on the receiving training symbols," in the invention as disclosed by Ahn et al. since quantum cryptography, which includes quantum cryptographic key distribution, typically has been experimented with and operated using an optical transmission medium (i.e. optical fibers). Thus, the applicant's claim which appears to be directed towards the operation, adjustment/manipulation, and functionality of optical communications would be applicable to any method, system, apparatus, and medium which utilizes a form of optical communications medium (i.e. in this case quantum cryptography since it is typically implemented with an optical communications medium such as fiber optics). That is, the same rules for optical communications would apply regardless the cryptographic methodology.

Applicants submit that the Examiner's allegation is merely a conclusory statement. Such conclusory statements have been repeatedly held to be insufficient for establishing a *prima facie* case of obviousness. In this respect, Applicants rely upon KSR International Co. v. Teleflex Inc., 550 U.S. \_\_\_\_ (April 30, 2007) (citing In re Kahn, 441 F.3d 977, 988 (Fed. Cir. 2006)), where it was held that rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.

The Examiner's allegation that since Applicants' method as recited in claim 1 would be applicable to any optical communications medium and that since AHN discloses an optical communications medium, therefore it would be obvious to include the features of claim 1 in the

invention of AHN, lacks merit. At best, such an allegation is impermissible hindsight reasoning, trying to read the features of claim 1 into the invention of AHN.

For at least the foregoing reasons, claim 1 is patentable over AHN. Accordingly, Applicants respectfully request that the rejection of claim 1 under 35 U.S.C. § 103(a) based on AHN be reconsidered and withdrawn.

Independent claims 11 and 12 recite features similar to, yet possibly of different scope than, features recited above with respect to claim 1. Therefore, these claims are patentable over AHN for at least reasons similar to the reasons set forth above with respect to claim 1. Accordingly, Applicants respectfully request that the rejection of claims 11 and 12 under 35 U.S.C. § 103(a) based on AHN be reconsidered and withdrawn.

Independent claim 13, amended as proposed, is directed to a method of automatically controlling a path length in a quantum cryptographic key distribution system, the path comprising a first interferometer and a second interferometer, the method comprising employing a phase shifting element in the second interferometer; and automatically adjusting the phase shifting element to control the path length based on training symbols transmitted over the path via quantum cryptographic mechanisms, where the training symbols were distinguished from other types of symbols transmitted over the path. AHN does not disclose or suggest this combination of features.

For example, AHN does not disclose or suggest automatically adjusting a phase shifting element to control a path length based on training symbols transmitted over the path via quantum cryptographic mechanisms, where the training symbols were distinguished from other types of symbols transmitted over the path, as recited in claim 13, amended as proposed. The Examiner

relies on col. 3, lines 17-18 and 20 of AHN for allegedly disclosing “an optical fiber phase modulator for varying the length of an optical fiber” (final Office Action, p. 7). Applicants submit that this section of AHN does not disclose or suggest the above feature of claim 13, amended as proposed.

Col. 3, lines 6-33 of AHN were reproduced above. This section of AHN discloses an optical fiber Mach-Zehnder interferometer in which a transmission wavelength is controlled by an optical fiber phase modulator (fiber stretcher) for controlling the polarization of the interfered light. The Examiner is interpreting receiving any optical signal having a wavelength as allegedly corresponding to “receiving training symbols” (final Office Action, p. 36).

Even if this interpretation is deemed reasonable (a point Applicants do not concede), this section of AHN does not disclose or suggest distinguishing any optical signals from other types of signals, as would be required by claim 13, amended as proposed, based on the Examiner’s interpretation of AHN. Furthermore, as stated above with respect to claim 1, this section (or any other section) of AHN does not disclose, suggest, or have anything to do with, quantum cryptography. Therefore, this section of AHN cannot disclose or suggest receiving symbols via quantum cryptographic mechanisms. Therefore, this section of AHN cannot disclose or suggest automatically adjusting a phase shifting element to control a path length based on training symbols transmitted over the path via quantum cryptographic mechanisms, where the training symbols were distinguished from other types of symbols transmitted over the path, as recited in claim 13, amended as proposed.

For at least the foregoing reasons, claim 13 is patentable over AHN. Accordingly, Applicants respectfully request that the rejection of claim 13 under 35 U.S.C. § 103(a) based on AHN be reconsidered and withdrawn.

Claims 14-17 depend from claim 13. Therefore, these claims are patentable over AHN for at least the reasons set forth above with respect to claim 13. Accordingly, Applicants respectfully request that the rejection of claim 14-17 under 35 U.S.C. § 103(a) based on AHN be reconsidered and withdrawn.

Independent claim 26 recites features similar to, yet possibly of different scope than, features recited above with respect to claim 13. Therefore, this claim is patentable over AHN for at least reasons similar to the reasons set forth above with respect to claim 13. Accordingly, Applicants respectfully request that the rejection of claim 26 under 35 U.S.C. § 103(a) based on AHN be reconsidered and withdrawn.

Independent claim 27, amended as proposed, is directed to a method of automatically controlling a path length in a quantum cryptographic key distribution (QKD) system, the method including employing a feedback system in the QKD system, where the QKD system comprises a first interferometer and a second interferometer; receiving training symbols transmitted over the path from the first interferometer to the second interferometer via quantum cryptographic mechanisms, where the training symbols are distinguished from data symbols; and automatically controlling the path length, using the feedback system, based on the training symbols transmitted over the path from the first interferometer to the second interferometer. AHN does not disclose or suggest this combination of features.



For example, AHN does not disclose or suggest receiving training symbols transmitted over the path from the first interferometer to the second interferometer via quantum cryptographic mechanisms, where the training symbols are distinguished from data symbols, as recited in claim 27, amended as proposed. The Examiner relies on col. 3, lines 9-14, 20, and 31-32 of AHN for allegedly disclosing the features of claim 27 (final Office Action, p. 11). Applicants submit that these sections of AHN do not disclose the above feature of claim 27, amended as proposed.

Col. 3, lines 6-33 of AHN were reproduced above. This section of AHN discloses an optical fiber Mach-Zehnder interferometer in which a transmission wavelength is controlled by an optical fiber phase modulator (fiber stretcher) for controlling the polarization of the interfered light. The Examiner is interpreting receiving any optical signal having a wavelength as allegedly corresponding to “receiving training symbols” (final Office Action, p. 36).

Even if this interpretation is deemed reasonable (a point Applicants do not concede), this section of AHN does not disclose or suggest distinguishing any optical signals from data symbols, as would be required by claim 27 based on the Examiner’s interpretation of AHN. Furthermore, as stated above with respect to claim 1, this section (or any other section) of AHN does not disclose, suggest, or have anything to do with, quantum cryptography. Therefore, this section of AHN cannot disclose or suggest receiving symbols via quantum cryptographic mechanisms. Therefore, this section of AHN cannot disclose or suggest receiving training symbols transmitted over the path from the first interferometer to the second interferometer via quantum cryptographic mechanisms, where the training symbols are distinguished from data symbols, as recited in claim 27, amended as proposed.

For at least the foregoing reasons, claim 27 is patentable over AHN. Accordingly, Applicants respectfully request that the rejection of claim 27 under 35 U.S.C. § 103(a) based on AHN be reconsidered and withdrawn.

Claims 28-32 depend from claim 27. Therefore, these claims are patentable over AHN for at least the reasons set forth above with respect to claim 27. Accordingly, Applicants respectfully request that the rejection of claim 28-32 under 35 U.S.C. § 103(a) based on AHN be reconsidered and withdrawn.

Independent claim 41 recites features similar to, yet possibly of different scope than, features recited above with respect to claim 27. Therefore, this claim is patentable over AHN for at least reasons similar to the reasons set forth above with respect to claim 27. Accordingly, Applicants respectfully request that the rejection of claim 41 under 35 U.S.C. § 103(a) based on AHN be reconsidered and withdrawn.

Claims 42-44 depend from claim 41. Therefore, these claims are patentable over AHN and PAGE, whether taken alone or in any reasonable combination, for at least the reasons set forth above with respect to claim 41. Accordingly, Applicants respectfully request that the rejection of claims 42-44 under 35 U.S.C. § 103(a) based on AHN be reconsidered and withdrawn.

Rejection under 35 U.S.C. § 103(a) based on PAGE

Claims 52-59, 61, and 62 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over PAGE.

Independent claim 52, amended as proposed, is directed to a method of controlling a path length in a quantum cryptographic key distribution (QKD) system, comprising receiving one or more symbols that indicate that a subsequent sequence of symbols comprises training symbols; determining probabilities associated with a plurality of detection events, the plurality of detection events being associated with the training symbols received over a path in the QKD system via quantum cryptographic mechanisms; and controlling a length of the path based on the determined probabilities. PAGE does not disclose or suggest this combination of features.

For example, PAGE does not disclose or suggest receiving one or more symbols that indicate that a subsequent sequence of symbols comprises training symbols, as recited in claim 52, amended as proposed. In rejecting claim 52, the Examiner relies on col. 18, lines 20-24; col. 26, lines 43-46; and col. 17, lines 51-55 of PAGE for allegedly disclosing the feature of claim 52 (final Office Action, pp. 16-17). Applicants submits that none of these sections (or any other section) of PAGE discloses or suggests the above features of claim 52, amended as proposed.

For example, col. 18, lines 20-24 of PAGE disclose:

For each discrete Kalman filter "cycle," corresponding to a predetermined filter update rate, an "a priori" mean square estimation error is computed as a function of rate correlation time, previous mean square estimation error computations, and the statistical effects of the previously-described residual noise. The Kalman current measurement "gain" is then computed therefrom which, in turn, is utilized with previous computations to derive an optimal estimate of the central peak modulator voltage in accordance with functional processes well-known in the art.

This section of PAGE discloses a Kalman filter cycle, used for mean square estimation error computations. This section of PAGE does not disclose or suggest receiving one or more symbols

that indicate that a subsequent sequence of symbols comprises training symbols, as recited in claim 52, amended as proposed.

Col. 26, lines 43-46 of PAGE disclose:

The rate sensor further includes detection circuit means connected to the gyroscope channel for generating an intensity signal indicative at least in part of the resultant fringe patterns. Signal processing means are connected to the detection circuit means and responsive to the intensity signal for generating output signals corresponding at least in part to the rate of angular rotation.

This section of PAGE discloses a rate sensor with a detection circuit connected to a gyroscope channel that appears to have no relation to the features recited in claim 52. This section of PAGE does not disclose or suggest receiving one or more symbols that indicate that a subsequent sequence of symbols comprises training symbols, as recited in claim 52, amended as proposed.

Col. 17, lines 51-55 of PAGE disclose:

For example, a sequential Kalman filter can provide optimal estimates of the true value of the modulator drive voltage corresponding to the central peak of the intensity signal S, even with substantially noisy measurements of this peak location.

This section of PAGE discloses a Kalman filter that can provide optimal estimates of true value of the central peak of an intensity signal of a modulator drive voltage. This section of PAGE does not disclose or suggest receiving one or more symbols that indicate that a subsequent sequence of symbols comprises training symbols, as recited in claim 52, amended as proposed.

Moreover, PAGE does not disclose or suggest determining probabilities associated with a plurality of detection events, the plurality of detection events being associated with the training symbols received over a path in the QKD system via quantum cryptographic mechanisms, as also recited in claim 52, amended as proposed.

As stated above, in rejecting claim 52, the Examiner relies on col. 18, lines 20-24; col. 26, lines 43-46; and col. 17, lines 51-55 of PAGE for allegedly disclosing the feature of claim 52

(final Office Action, pp. 16-17). Applicants submits that these sections (or any other section) of PAGE also do not disclose or suggest this feature of claim 52, amended as proposed.

Col. 18, lines 20-24 of PAGE were reproduced above. As stated above, this section of PAGE discloses a Kalman filter cycle, used for mean square estimation error computations. This section of PAGE does not disclose, suggest, or have anything to do with, quantum cryptography. Thus, this section of PAGE cannot disclose or suggest receiving symbols via quantum cryptographic mechanisms. Therefore, section of PAGE cannot disclose or suggest determining probabilities associated with a plurality of detection events, the plurality of detection events being associated with the training symbols received over a path in the QKD system via quantum cryptographic mechanisms, as recited in claim 52, amended as proposed.

Col. 26, lines 43-46 of PAGE were reproduced above. As stated above, this section of PAGE discloses a rate sensor with a detection circuit connected to a gyroscope channel that appears to have no relation to the features recited in claim 52. Furthermore, this section of PAGE does not disclose, suggest, or have anything to do with, quantum cryptography. Thus, this section of PAGE cannot disclose or suggest receiving symbols via quantum cryptographic mechanisms. Therefore, section of PAGE cannot disclose or suggest determining probabilities associated with a plurality of detection events, the plurality of detection events being associated with the training symbols received over a path in the QKD system via quantum cryptographic mechanisms, as recited in claim 52, amended as proposed.

Col. 17, lines 51-55 of PAGE were reproduced above. This section of PAGE discloses a Kalman filter that can provide optimal estimates of true value of the central peak of an intensity signal of a modulator drive voltage. This section of PAGE does not disclose, suggest, or have

anything to do with, quantum cryptography. Thus, this section of PAGE cannot disclose or suggest receiving symbols via quantum cryptographic mechanisms. Therefore, section of PAGE cannot disclose or suggest determining probabilities associated with a plurality of detection events, the plurality of detection events being associated with the training symbols received over a path in the QKD system via quantum cryptographic mechanisms, as recited in claim 52, amended as proposed.

Accordingly, Applicants submit that PAGE does not disclose or suggest each of the features of claim 52. Furthermore, Applicants submit that the Examiner's reasons to modify PAGE to include the features of claim 52 do not satisfy the requirements of 35 U.S.C. § 103.

For example, with respect to the reasons to modify PAGE, the Examiner alleges (final Office Action, pg. 17):

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the Applicant's invention to include "determining probabilities associated with a plurality of detection events", and "the plurality of detection events being associated with a sequence of symbols received over the path in the QKD system," in the invention as disclosed by Page since quantum cryptography, which includes quantum cryptographic key distribution, typically has been experimented with and operated using an optical transmission medium (i.e. optical fibers). Thus, the applicant's claim which appears to be directed towards the operation, adjustment/manipulation, and functionality of optical communications would be applicable to any method, system, apparatus, and medium which utilizes a form of optical communications medium (i.e. in this case quantum cryptography since it is typically implemented with an optical communications medium such as fiber optics). That is, the same rules for optical communications would apply regardless the cryptographic methodology.

Applicants submit that the Examiner's allegation is merely a conclusory statement. Such conclusory statements have been repeatedly held to be insufficient for establishing a *prima facie* case of obviousness. In this respect, Applicants rely upon KSR International Co. v. Teleflex Inc., 550 U.S. \_\_\_\_ (April 30, 2007) (citing In re Kahn, 441 F.3d 977, 988 (Fed. Cir. 2006)), where it was held that rejections on obviousness grounds cannot be sustained by mere conclusory

statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.

The Examiner's allegation that since Applicants' method as recited in claim 52 would be applicable to any optical communications medium and that since PAGE discloses an optical communications medium, therefore it would be obvious to include the features of claim 52 in the invention of PAGE, lacks merit. At best, such an allegation is impermissible hindsight reasoning, trying to read the features of claim 52 into the invention of PAGE.

For at least the foregoing reasons, claim 52 is patentable over PAGE. Accordingly, Applicants respectfully request that the rejection of claim 52 under 35 U.S.C. § 103(a) based on PAGE be reconsidered and withdrawn.

Claims 53-59 depend from claim 52. Therefore, these claims are patentable over AHN for at least the reasons set forth above with respect to claim 52. Accordingly, Applicants respectfully request that the rejection of claim 53-59 under 35 U.S.C. § 103(a) based on AHN be reconsidered and withdrawn.

Independent claims 61 and 62 recites features similar to, yet possibly of different scope than, features recited above with respect to claim 52. Therefore, these claims are patentable over PAGE for at least reasons similar to the reasons set forth above with respect to claim 52. Accordingly, Applicants respectfully request that the rejection of claims 61 and 62 under 35 U.S.C. § 103(a) based on PAGE be reconsidered and withdrawn.

Rejection under 35 U.S.C. § 103(a) based on AHN and PAGE

Claims 2-10, 18-25, 33-40, 45-51, and 60 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over AHN in view of PAGE.

Claims 2-10 depend from claim 1. Without acquiescing in the Examiner's rejection, Applicants submit that PAGE does not overcome the deficiencies of AHN set forth above with respect to claim 1. Therefore, claims 2-10 are patentable over AHN and PAGE, whether taken alone or in any reasonable combination, for at least the reasons set forth above with respect to claim 1. Accordingly, Applicants respectfully request that the rejection of claims 2-10 under 35 U.S.C. § 103(a) based on AHN and PAGE be reconsidered and withdrawn.

Claims 18-25 depend from claim 13. Without acquiescing in the Examiner's rejection, Applicants submit that PAGE does not overcome the deficiencies of AHN set forth above with respect to claim 13. Therefore, claims 18-25 are patentable over AHN and PAGE, whether taken alone or in any reasonable combination, for at least the reasons set forth above with respect to claim 13. Accordingly, Applicants respectfully request that the rejection of claims 18-25 under 35 U.S.C. § 103(a) based on AHN and PAGE be reconsidered and withdrawn.

Claims 33-40 depend from claim 27. Without acquiescing in the Examiner's rejection, Applicants submit that PAGE does not overcome the deficiencies of AHN set forth above with respect to claim 27. Therefore, claims 33-40 are patentable over AHN and PAGE, whether taken alone or in any reasonable combination, for at least the reasons set forth above with respect to claim 27. Accordingly, Applicants respectfully request that the rejection of claims 33-40 under 35 U.S.C. § 103(a) based on AHN and PAGE be reconsidered and withdrawn.

Claims 45-51 depend from claim 41. Without acquiescing in the Examiner's rejection, Applicants submit that PAGE does not overcome the deficiencies of AHN set forth above with respect to claim 41. Therefore, claims 45-51 are patentable over AHN and PAGE, whether taken alone or in any reasonable combination, for at least the reasons set forth above with respect to



claim 41. Accordingly, Applicants respectfully request that the rejection of claims 45-51 under 35 U.S.C. § 103(a) based on AHN and PAGE be reconsidered and withdrawn.

Independent claim 60 recites features which are similar, yet possibly of different scope than, features recited above with respect to claim 52. Without acquiescing in the Examiner's rejection, Applicants submit that AHN does not overcome the deficiencies of PAGE set forth above with respect to claim 52. Therefore, claim 60 is patentable over AHN and PAGE, whether taken alone or in any reasonable combination, for at least the reasons set forth above with respect to claim 52. Accordingly, Applicants respectfully request that the rejection of claim 60 under 35 U.S.C. § 103(a) based on AHN and PAGE be reconsidered and withdrawn.

### **CONCLUSION**

In view of the foregoing amendments and remarks, Applicants respectfully request the Examiner's reconsideration of this application, and the timely allowance of the pending claims.

If the Examiner does not believe that all pending claims are now in condition for allowance, the Examiner is urged to contact the undersigned to expedite prosecution of this application.

As Applicants' amendments and remarks with respect to the Examiner's rejections are sufficient to overcome the rejections, Applicants' silence as to assertions by the Examiner in the Office Action or certain requirements that may be applicable to such rejections (e.g., whether a reference constitutes prior art, motivation to combine references, assertions as to dependent claims, etc.) is not a concession by Applicants that such assertions are accurate or such requirements have been met, and Applicants reserve the right to analyze and dispute such assertions/requirements in the future.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 18-1945, under Order No. BBNT-P02-097 and please credit any excess fees to such deposit account.

Dated: October 20, 2008

Respectfully submitted,

/Michael J. Chasan/  
Michael J. Chasan  
Registration No.: 54,026  
ROPES & GRAY LLP  
1211 Avenue of the Americas  
New York, New York 10036  
(212) 596-9000  
(212) 596-9090 (Fax)  
Attorneys/Agents For Applicants